# A dissertation, on Hydrocephalus,

by

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admitted March 20th 1822

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As in politicks a secret enemy is most to be dreaded, so in medicine, those diseases which make their advances by slow and imperceptible degrees, are generally those which ultimately create the greatest alarm and baffle the art of the Physician. It is not that in their incipient stages, diseases of this nature, such as Phthisis, Marasmus, and Hydrocephalus, powerfully resist the agents of the healing art; but they establish their empire over the system with such inconsiderable interference with it's healthy functions that they are, very frequently completely fortified from attack before the sufferer is awakened to a sense of his danger.

Among these insidious enemies of the human race Hydrocephalus holds a distinguished rank. Our knowledge of this disease is of modern date; Hypocrates, Aetius, and Celsus speak of "watery effusions" between the surface of the brain and the cranium, but they do not appear to have known of it's existence in the ventricles.

Dr Whytt appears to have been the first who insulated Hydrocephalus from other affections of the head, and the additional observations of Dr Fothergill gave it a distinct character.

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We are next indebted to Dr. Quinn of Dublin, and Dr Rush for a more complete description of the nature of the Hydrocephalus acutus of the former, by the latter termed Phrenicula. Dr Rush was induced to apply this term to the disease in question, by the consideration that it's commencement was inflammatory and analagous to a lesser degree of Phrenitis forming the first stage of the disease, and the effusion of a fluid the second. Other divisions of the disease have been proposed by various writers, but they appear to have been founded merely on some circumstances attending it's accession, but which do not influence it's termination. A late writer on "Water in the Brain" has divided it into four stages viz. determination towards the head, inflammation, effusion and palsy. This division is at best unnecessarily minute, but this is not all, the first of these stages is rather a state of things existing previously to the actual disease, and the last but a new circumstance, and not always attending it.

Hydrocephalus is prevalent among infants at the breast and through the earlier years of childhood: adults are however sometimes it's victims. The symptoms which

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characteristic it are as follows; as premonitory to the more decided symptoms of Hydrocephalus, the patient evinces a langour and indisposition to exercise which occasionally remits, and in the interval he is more than usually sprightly. The usual glow of health gradually, but sometimes rapidly declines, the features become contracted, the eyes lose their expression and a dark colour is sometimes observed around the under parts of their orbits; the skin becomes harsh and more than usually warm, and there are symptoms of superfial The appetite is very variable, sometimes craving for food of a particular kind, or outre articles, the bowels are costive and yield uncommonly consistent faeces by the operation of a cathartic, the tongue is white and dry, after a time the langour and disposition to rest the head become more constant, and headache is occasionally complained of; the eyes become more dull and their pupils dilated, and not unfre-quently there appears to be an intolerance of the light, the pulse becomes more frequent and small. These symptoms are not all proper to Hydrocephalus; worms and other causes of gastric and enteric irritation give rise to appearances

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so similar that many practitioners have no doubt been misled by them. But the increased and permanent dilatation of the pupils, pain in the head, aversion to light, the hearing surprisingly acute, strabismus &c. characterise this disease. Pain in the back of the neck, copious discharge of pellucid urine, and fœcal discharges watery, are symptoms which attend the advanced stages of Hydrocephalus and may be regarded as indicating an unfortunate termination.

This account of the disease can only be considered as an outline; we want words to express many of the symptoms and appearances which lead a practical Physician to a knowledge of this disorder, far more certainly than all descriptions we have of "this truly proteiform disease" as Dr. Quin has emphatically called it.

The quantity of fluid collected within the Cranium is very various, sometimes being nearly equal to the whole capacity of that cavity, and at others not exceeding a few drachms: nor does it appear that the violence of the symptoms depends in any considerable degree upon this circumstance.

The cause of Hydrocephalus has been a subject of debate in

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which a number of Medical Philosophers of the highest rank have engaged. It would be improper here to enter into a detail of all the facts and arguments on record, touching this subject; I will therefore confine myself to a general view of it.

In the first place there is undoubtedly a predisposition to this disease which is hereditary. It exists in that constitution which has been termed the Scrofulous, and which is characterised by a frame of body rather delicate, fair skin, blue eyes, light hair, the disposition being lively and the intellect acute. Dr. Cheyne mentions an instance in which a family lost four of its young members, and another three by this disease; and he says that he heard of an another in which seven fell victims to Hydrocephalus; and in Sauvages we find the following record "Novi familiam cujus infantes circa septum aetatis annum omnes periere ex hoc morbo, scrophula huic effusioni ansam praebente." Cullen Nosology. A predisposition appears also to be induced by other diseases, among which Scarlet fever, Measles, Small pox, whooping cough &c. have been mentioned. The question, however, whether these ~~may~~ have operated in-

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-dependently of any original or hereditary predisposition, is not, perhaps, sufficiently proved by the mere circumstance of their being followed by Hydrocephalic symptoms.

Many cases of Hydrocephalus have been attributed to blows upon the head, falls, and other accidents producing cerebral concussions. The intervals however which have often occur'd between the accident and the accession of the disease, have been so long and so free from any indication of approaching danger, as to render the efficiency of this cause, very questionable. Dr Cheyne (whose authority is deservedly respected) says, that out of one hundred cases of this disease which came under his notice, one only could be traced to a cause of this nature, and in that instance the patient was affected with a violent Catarrh. So that although the evidence of this Gentleman is of a negative character, it is strongly presumptive. Scrophula, he observes, frequently follows a severe accident, and this disease may open the way to Hydrocephalus.

It appears to have been the opinion of Dr Rush, that whatever circumstances induce a debilitated state of the

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Constitution, particularly irritating causes such as fever, worms, teething &c. in children predisposed to Hydrocephalus, may excite it's latent action.

With the assistance of Metastasis, the disease in question has also been referred to the suppression of customary discharges &c. This however is so hypothetical that we are not prepared either to admit or contradict it.

Respecting the proximate cause of Hydrocephalus, opinions quite as discordant have been entertained. By some writers, among whom the names of Whytt & Pettingill appear, it has been confounded with common Dropsy. Drs. Quin and Cheyne have taken another view of the subject, which I beg leave to relate in the words of the latter. "I would venture to submit the following as a more consistent view of the pathology of Hydrocephalus: that, in this disease there is produced a venous congestion, in addition to and probably arising from the increased arterial action; that the effusion of serous fluid arises from this venous congestion; that this effusion has a tendency to counteract the baleful effects of the increased action, and to retard the fatal termination of the disease;

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of course that the effusion into the ventricles is not the cause of the violent symptoms; and that the increased arterial action, though perhaps varied, does not cease when the congestion and effusion take place.

This theory is strongly corroborated by the circumstance of patients expiring under all the symptoms of Hydrocephalus acutus, in whom dissection, post mortem, has detected no unnatural effusion, but an appearance of the congestion of which Dr Cheyne speaks.

There is another view of this subject entitled to high consideration, which is not embraced by the foregoing theories. I allude to the sympathetic association between the brain and the abdominal viscera, particularly the stomach. The disordered state of the bowels, we have already taken notice of among the symptoms of Hydrocephalus. Dr Whytt speaks of lumbrici, and some substance resembling worms in a dissolved state being discharged from the bowels, when the symptoms of the disease in question were present, and a number of practitioners have remarked the peculiar appearance of the stools in these cases. The term Hydrocephal-

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-ic stools, indeed, is sometimes used and considered as suf-
-ficiently definitive. They consist most probably of vitiated
bile mixed with the intestinal mucus.

There are other considerations which tend to prove the
strong sympathy which exists between the brain and diges-
-tive organs, and which is most probably called into action
in every instance of the derangement of the funtions of either.

There are arguments, also, strongly in favour of the opinion
that these sympathetick actions much more frequently a-
-rise in the stomach, than in the other viscera: the sin-
-gle circumstance of it's greater exposure, being the organ
which first recives the crude matter destined for the sup-
-port of the animal, which may be, and frequently is in a certain
degree prejudicial, gives great plausibility to this position.

The circumstance of a fatal termination of diseases,
commencing in a disorder of the digestive organs and grad-
-ally giving rise to Hydrocephalic symptoms, which become
more and more violent until death, and no ~~[illegible]~~ watery ef-
-fusion being afterwards found in the brain, is also an argu-
-ment of considerable weight in favour of the gastrick pathology.

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In no disease is it of greater importance to establish the diagnosis at an early stage. So strongly was Dr. Cheyne impressed with this idea that he advises every Practitioner "to be on the watch for it", and carefully to investigate the history of a child's complaints, if headache is among them.

There is an analogy between the Symptoms of Hydrocephalus and the fevers excited by dentition, worms, and causes of a similar nature, which is well calculated to mislead the Practitioner especially if he had not the advantage of seeing the Patient at an early stage. The progress of Hydrocephalus is more gradual, the gastric disorder less variable, the stools are of a greenish colour and less changeable in their appearance; light is offensive, the pupils of the eyes are dilated, the pain in the head is rather of an obtuse or chronic character, nevertheless often distressing. There is a peculiar expression of anxiety and distress in the Countenance of the Patient. The intermissions of these symptoms are very irregular. In the intermittent or remittent fever, the head is not so much affected, the intervals are more distinct and free from complaint; the stools are different in their appearance and more variable.

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The prognosis in Hydrocephalus is unfavourable when the disease has run to any great length. In it's incipient stage it appears to be under the control of the healing art, but not when effusion has taken place to a considerable extent. The accession of a profuse perspiration is mentioned by Dr. Cheyne as a favourable symptom: by Dr Chapman a pain in the back of the neck and a copious discharge of pellucid urine are regarded as very unfavourable. The subsidence of the pain in the head and the discharges becoming natural is favourable; no appearances are implicitly to be relied on as indicating a happy termination, for the prognoses of the disease are very uncertain and treacherous, sometimes the symptoms which were very violent rapidly and unexpectedly subside and lead us to hope for a speedy recovery, but our hopes are soon blasted, for generally after we are led in to fatal security from this false appearance of Convalescence, every bad symptom returns with increased violence, and renders all our efforts useless.

In the treatment of Hydrocephalus three important indications present themselves 1st. to reduce arterial action. 2nd.

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to dislodge the irritating matter from the alimentary canal, 3rd. to correct the diseased actions of the digestive organs.

Blood-letting is the first remedy to be applied, and may be either local or general, according as the symptoms indicate. The pulse though it may assist in determining the quantity of blood which should be drawn, and the frequency of the operation, it can by no means be allowed to direct us altogether in the use of this valuable remedy. Hunter says "that in inflamation of the brain the pulse varies more than in inflamation of any other part; and therefore we ought to be guided in the use of the lancet in inflammations there, more from other symptoms than the pulse" This important remedy acts in various ways; it reduces inflammation in the incipient stage and prevents effusion, or should effusion have taken place, it acts powerfully in promoting absorption. In some cases it may be advisiable to open the jugular veins, and even the temporal artery, particularly when there are evident symptoms of local congestion. Local evacuations by cupping, leeches and scarification may sometimes supercede the necessity of general bleeding, particularly in very young children.

Cathartics are next to be exhibited, as well to remove offensive mat-

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-ta, as to reduce the system and to divert the determination from the brain. Calomel appears to be the best article of this class. Dr. Rush combined it with Jalap. he remarks that all the patients, whose cases have been related, were relieved by plentiful repeated evacuations ~~[illegible]~~ from the bowels. Some writers even prefer purgets to blood letting. The only case that Dr. Whytt cured was treated with Cal. Jal. & Rhub. frequently repeated. Smyth combined squills with the Calomel. Owing to the the torpid state of the bowels it is often necessary to increase the dose to treble and even quadruple the usual quantity.

Blisters are a very popular remedy: a moment's consideration of the plethoric state of the vessels of the encephalon is sufficient to convince us of their utility in this disease. Their application should be preceeded by Venesection. They afford relief by removing inflammation to the surface, and by keeping up a constant drain, remove the plethora of the vessels. They should be applied immediately over the whole of the head in the form of a cap, unless we want to make use of cold applications to this part, then we may apply them to the nape of the neck, or behind the ears.

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cloths dipped in water, or vinegar and water, have been made use of in conjuction with blisters.

Setons and Issues have likewise been resorted to; whether they ought to be preferred to blisters is doubtful, in chronic cases, or where there is an hereditary predisposition, as prophylactics they may be employed with advantage. In these cases Monroe advises a perpetual issue to be kept discharging at the bregma.

Pedeluvium should not be overlooked in the incipient stage, it produces a determination to the surface, and encourages a larger share of blood from the head and superior extremities, to the lower. Dr. Hunter relates a case in which the vapour bath effected a cure. Quin also speaks favourably of it, as an auxiliary to the more powerful remedies.

Many other remedies might be mentioned here which have been resorted to in this disease at different times, but as they are of doubtful efficacy I shall not notice them. Mercury however is the remedy to which we must effect to be indebted for our general success in the treatment of Hydrocephalus. It should be exhibited not only internally, in the form of Calomel, but we should resort to every possible means of applying it to

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After effusion has taken place, the administration of medicine will be entirely incompetent to effect a cure; our only resource, in this stage of the complaint, is to the operation of evacuating the fluid. There have been cases in which this desperate remedy alone effected a cure.

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